

AUTHOR INDEX

- Abid, B., 99
 Adler, D., 177, 439
 Aharoni, H., 281, 371
 Ahrenkiel, R. K., 353
 Ajmera, P. K., 291
 Ali, A. Y., 263
 Al-Jassim, M. M., 459
 Ang, S. T., 73
 Arau, B. A., 253
 Arya, R. R., 15

 Bachmann, K. J., 99
 Baron, B. N., 453
 Basol, B. M., 65
 Bedair, S. M., 413
 Bernard, J., 458
 Bhattacharya, R. N., 371
 Bird, G., 301
 Birkmire, R. W., 451
 Böer, K. W., 263
 Booker, J., 451
 Branz, H. M., 177
 Burnham, N. A., 135

 Cannon, T., 329
 Cape, J. A., 109
 Carlson, D. E., 15
 Catalano, A., 15
 Chiang, P. K., 241, 449
 Chu, S. S., 73
 Chu, T. L., 73
 Ciszek, T. F., 81
 Collis, W. J., 453
 Cook, J. W., Jr., 387
 Cooper, J. A., Jr., 233
 Coutts, T. J., 281, 371
 Crisman, E. E., 458

 D'Aiello, R. V., 15
 Dalal, V., 451
 Daly, J. T., 458
 Damaskinos, S., 459
 Deb, S. K., 454
 DeBlasio, R., 343
 Delahoy, A. E., 153
 D'Errico, J. J., 195
 Dhere, R. G., 281
 Dickson, C. R., 15
 Dunlavy, D. J., 353

 Elmasry, N. A., 413
 Emery, K., 313
 Eser, E., 25

 Fahrenbruch, A. L., 399
 Fan, S., 177
 Flint, J. H., 177
 Ford, C. W., 253
 Fountain, G. G., 449
 Fraas, L. M., 109
 Froyen, S., 458

 Gallagher, A., 147
 Gau, S. C., 25
 Gerritsen, H. J., 458
 Gessert, T. A., 281, 450
 Goslowsky, H., 99
 Green, R. T., 253
 Guha, S., 450

 Haggerty, J. S., 177
 Hamaguchi, N., 413
 Hamaker, H. C., 353
 Harris, C. J., 177
 Hay, K. A., 454
 Hegedus, S. S., 453
 Hodes, G., 215
 Hollingsworth, R. E., 379
 Hulstrom, R., 329
 Husain, S., 301
 Hutchby, J. A., 241, 449

 Iyer, S., 453

 Jackson, S. C., 453
 Jackson, W. B., 431
 Jacobson, R. L., 141
 Jeffrey, F. R., 141
 Jones, K. M., 281

 Kapur, V. K., 65
 Karlsson, S. K. F., 458
 Katsuyama, T., 413
 Kazmerski, L. L., 135
 Kibbler, A., 450, 456
 Kusano, C., 387

 Lamorte, M. F., 449
 Lay, K. Y., 99

 Lee, C., 452
 Lewis, C. R., 253
 Liem, L. K., 177
 Lokhande, C. D., 215
 Lucovsky, G., 387
 Luft, W., 457
 Lundstrom, M. S., 233

 Mahan, A. H., 117, 189, 205
 Mantravadi, M. K., 73
 Matson, R. J., 55, 455
 Mbaye, A.-A., 458
 McLeod, P. S., 109
 McMahon, C. P., 233
 McMahon, T. J., 205
 Meakin, J. D., 451
 Melloch, M. R., 233
 Menna, P., 189
 Mitchell, K. W., 127
 Moore, D., 413
 Mrig, L., 343

 Neff, H., 99
 Nelson, A. J., 135, 281
 Noufi, R., 55, 454, 455
 Nouhi, A., 225

 O'Dowd, J., 15
 Ohlsen, W. D., 452
 Olson, J. M., 450, 456
 Osterwald, C., 313
 Oswald, R. S., 15

 Panayotatos, P., 301
 Pankove, J. I., 419
 Parayanthhal, P., 371
 Parsons, G. N., 387
 Partain, L. D., 109
 Pernisz, U. C., 195
 Phillips, J. E., 451, 459
 Piechowski, A., 301
 Pollak, F. H., 371
 Powell, R. C., 55, 454

 Qian, Q.-D., 233

 Raboisson, P., 117
 Ramanathan, V., 454
 Ramaprasad, K. R., 25

- Ramos, F., 25
Ranganathan, R., 452
Riordan, C., 337
Rocheleau, R. E., 453
Rohatgi, A., 450
Rothwarf, A., 1
- Sauers, R., 301
Saunders, A., 455
Schafer, D. E., 454
Schilling, L. L., 281
Schott, J., 147
Sharp, K. G., 195
Shen, H., 371
Shin, H. Y., 291
Sites, J. R., 379
Spitzer, M. B., 457
Stirn, R. J., 225
Stone, J. L., 449
- Stutzmann, M., 431
Su, F.-C., 167
Swartzlander, A. B., 135
- Tarhay, L., 195
Taylor, P. C., 452
Thornton, J. A., 41
Timmons, M. L., 241, 449
Tischler, M. A., 413
Tobin, S. P., 456
Tsai, C. C., 431
Tseng, E. S., 65
Tsu, R., 19, 117, 189
205
- Vanderheiden, E. D., 452
Vanier, P. E., 167
Vecht, A., 455
Vernon, S. M., 456
- Vernstrom, G. D., 141
Virshup, G. F., 253
Volltrauer, H., 25
Vos, R., 25
- Waddington, D., 343
Wei, S.-H., 458
Werthen, J. G., 253, 452
Westerberg, R. K., 141
Williamson, D. L., 117
Wolfson, R. G., 456
Wood, D., 458
- Xi, J. P., 205
- Zamanian, B., 291
Zanio, K. R., 454
Zunger, A., 458, 460

SUBJECT INDEX

- Atmospheric optical calibration
 atmospheric optical calibration system
 for outdoor photovoltaic measurements, 329
- Auger line shape analysis
 Auger line shape analysis of a-Si:H, 135
- Bonding defects
 bonding defects in a-Si alloys, 387
- Carbon
 optical absorption and disorder in
 a-SiGe:H and a-SiC:H alloy systems, 189
- Cascade cells
 new approaches for high efficiency
 cascade solar cells, 413
 patterned Ge tunnel junctions for
 multijunction monolithic cascade
 solar cells, 241
 reproducible integration of multi-
 junction cascade cell components,
 253
- CdS
 deep level study of CdS/CuInSe₂ solar
 cells, 454
 junction formation and the role of
 oxygen in thin film CdS/CuInSe₂
 solar cells, 455
 low cost methods for the production
 of semiconductor films for CuInSe₂/
 CdS solar cells, 65
- CdTe
 application of metal-organic chemical
 vapour deposition techniques to
 CdTe/In₂O₃:Sn thin film solar
 cells, 454
 CdTe/CuInSe₂ multijunction solar
 cells, 451
 ohmic contacts and doping of CdTe,
 399
 thin film CdTe solar cells, 73
- CdZnTe
 CdZnTe for a wide band gap all thin
 film solar cell, 454
- Chemical vapour deposition
 application of metal-organic chemical
 vapour deposition techniques to
 CdTe/In₂O₃:Sn thin film solar cells,
 454
 high efficiency amorphous alloy solar
 cells prepared by Hg-sensitized
 photochemical vapour deposition
 of disilane, 153
in situ optical characterization of struc-
 tures grown by metal-organic
 chemical vapour deposition, 456
 laser-induced chemical vapour deposi-
 tion of a-Si:H: photovoltaic devices
 and material properties, 177
 photochemical vapour deposition of
 a-Si and alloys for thin film solar
 cells, 453
 preparation of thin films for photo-
 voltaic conversion by novel metal-
 organic chemical vapour deposition
 techniques, 455
 transmission electron microscopy and
 scanning electron microscopy char-
 acterization of GaP grown by
 metal-organic chemical vapour
 deposition on Si substrates, 459
- Concentrator cells
 multijunction concentrator solar cells,
 452
- Continuous-mode fabrication
 continuous-mode fabrication of a-Si so-
 lar cells on polyimide substrates, 141
- CuInS₂
 preparation of CuInSe₂ and CuInS₂
 films by reactive annealing in
 H₂Se or H₂S, 215
- CuInSe₂
 CdTe/CuInSe₂ multijunction solar
 cells, 451
 deep level study of CdS/CuInSe₂ solar
 cells, 454
 effect of stoichiometry and oxygen on
 the properties of CuInSe₂ thin films
 and devices, 55
 junction formation and the role of
 oxygen in thin film CdS/CuInSe₂
 solar cells, 455
 low cost methods for the production
 of semiconductor films for
 CuInSe₂/CdS solar cells, 65

- photoluminescence in polycrystalline CuInSe₂ solar cells, 379
- preliminary results on CuInSe₂/ZnSe solar cells using reactively sputter-deposited ZnSe, 225
- preparation of CuInSe₂ and CuInS₂ films by reactive annealing in H₂Se or H₂S, 215
- Current
 - measurement of photovoltaic device current as a function of voltage, temperature, intensity and spectrum, 313
- Disilane
 - high efficiency amorphous alloy solar cells prepared by Hg-sensitized photochemical vapour deposition of disilane, 153
 - improvements in the disilane plasma deposition of silicon a-Si:H solar cells, 167
- Disorder
 - optical absorption and disorder in a-SiGe:H and a-SiC:H alloy systems, 189
- Doping
 - effects of dopant and impurity incorporation on metastable light-induced defect formation, 431
 - ohmic constants and doping of CdTe, 399
- Drift field
 - influence of drift field on n-i-p solar cell performance, 263
- Efficiency
 - criteria for the design of high efficiency thin film solar cells: theory and practice, 1
 - high efficiency amorphous alloy solar cells prepared by Hg-sensitized photochemical vapour deposition of disilane, 153
 - highly efficient Si solar cells, 457
 - material considerations for high efficiency Si solar cells, 81
 - new approaches for high efficiency cascade solar cells, 413
 - photocollection efficiency of GaAs/AlAs/GaAs p⁺-i-n and n⁺-i-p photodiodes, 233
 - review of high efficiency multijunction and point contact GaAs solar cell development, 449
- status and directions in high efficiency Si solar cell research, 450
- Electronic structure
 - electronic structure and stability of semiconductor alloys, 460
- Electro-optical properties
 - electro-optical properties of thin In₂O₃:Sn films: limitations on performance, 281
- Fluorine
 - preparation of solar-grade a-Si from fluorinated silanes, 195
- GaAs
 - GaAs-based ternary compounds and solar cell research, 456
 - GaInP/GaAs multijunction solar cells, 450
 - photocollection efficiency of GaAs/AlAs/GaAs p⁺-i-n and n⁺-i-p photodiodes, 233
 - review of high efficiency multijunction and point contact GaAs solar cell development, 449
- GaAs/AlAs/GaAs
 - photocollection efficiency of GaAs/AlAs/GaAs p⁺-i-n and n⁺-i-p photodiodes, 233
- GaInP
 - GaInP/GaAs multijunction solar cells, 450
- GaP
 - transmission electron microscopy and scanning electron microscopy characterization of GaP grown by metal-organic chemical vapour deposition on Si substrates, 459
- Germanium
 - optical absorption and disorder in a-SiGe:H and a-SiC:H alloy systems, 189
 - patterned Ge tunnel junctions for multijunction monolithic cascade solar cells, 241
 - structural characterization of a-Si and Ge, 19
 - temperature-dependent photoconductivity and light-induced changes in a-Si_{1-x}Ge_x:H alloys, 205
- Glow discharge
 - evidence for microstructure in glow discharge a-SiC:H alloys, 117

- High speed characterization
high speed characterization of photovoltaic devices, 353
- H₂S
preparation of CuInSe₂ and CuInS₂ films by reactive annealing in H₂Se or H₂S, 215
- H₂Se
preparation of CuInSe₂ and CuInS₂ films by reactive annealing in H₂Se or H₂S, 215
- Hydrogen
Auger line shape analysis of a-Si:H, 135
defects in a-Si:H and related alloys, 452
evidence for microstructure in glow discharge a-SiC:H alloys, 117
gas and surface processes leading to a-Si:H films, 147
improvements in the disilane plasma deposition of silicon a-Si:H solar cells, 167
laser-induced chemical vapour deposition of a-Si:H: photovoltaic devices and material properties, 177
metastability of a-Si:H, 419
optical absorption and disorder in a-SiGe:H and a-SiC:H alloy systems, 189
theoretical investigations of the light-induced effects in a-Si:H, 439
- Impurities
effects of dopant and impurity incorporation on metastable light-induced defect formation, 431
- In₂O₃:Sn
application of metal-organic chemical vapour deposition techniques to CdTe/In₂O₃:Sn thin film solar cells, 454
electro-optical properties of thin In₂O₃:Sn films: limitations on performance, 281
photorefectance characterization of the space charge region in semiconductors: In₂O₃:Sn on InP as a model system, 371
- InP
photorelectance characterization of the space charge region in semiconductors: In₂O₃:Sn on InP as a model system, 371
- Intensity
measurement of photovoltaic device current as a function of voltage, temperature, intensity and spectrum, 313
- Junction formation
junction formation and the role of oxygen in thin film CdS/CuInSe₂ solar cells, 455
- Light-induced effects
effects of dopant and impurity incorporation on metastable light-induced defect formation, 431
study of thermal and light-induced changes in a-Si alloy materials, 453
temperature-dependent photoconductivity and light-induced changes in a-Si_{1-x}Ge_x:H alloys, 205
theoretical investigations of the light-induced effects in a-Si:H, 439
- Light spot scanning
light spot scanning of solar cells; a test of the assumption of uniformity, 459
- Liquid phase epitaxy
rapid liquid phase epitaxial growth studies, 458
- Materials
material aspects of multijunction solar cell research, 450
- Mercury
high efficiency amorphous alloy solar cells prepared by Hg-sensitized photochemical vapour deposition of disilane, 153
- Metal-organic chemical vapour deposition
application of metal-organic chemical vapour deposition techniques to CdTe/In₂O₃:Sn thin film solar cells, 454
in situ optical characterization of structures grown by metal-organic chemical vapour deposition, 456
preparation of thin films for photovoltaic conversion by novel metal-organic chemical vapour deposition techniques, 455
transmission electron microscopy and scanning electron microscopy characterization of GaP grown by metal-organic chemical vapour deposition on Si substrates, 459
- Microstructure
evidence for microstructure in glow discharge a-SiC:H alloys, 117

Modules

- device aspects of multijunction photovoltaic modules research, 127
- improving the performance of a-Si photovoltaic modules, 15
- long-term stability of a-Si solar cells and modules, 25

Ohmic contacts

- ohmic contacts and doping of CdTe, 399

I-III-VI₂ alloys

- II-VI and I-III-VI₂ alloy crystals for photovoltaic applications, 99

Optical absorption

- optical absorption and disorder in a-SiGe:H and a-SiC:H alloy systems, 189

Optical characterization

- in situ* optical characterization of structures grown by metal-organic chemical vapour deposition, 456

Organic semiconductors

- approach to the optimal design of p-n heterojunction solar cells using thin film organic semiconductors, 301

Outdoor measurements

- atmospheric optical calibration system for outdoor photovoltaic measurements, 329
- outdoor performance and stability testing of thin film devices, 343

Oxygen

- effect of stoichiometry and oxygen on the properties of CuInSe₂ thin films and devices, 55
- junction formation and the role of oxygen in thin film CdS/CuInSe₂ solar cells, 455

Performance

- electro-optical properties of thin In₂O₃:Sn films: limitations on performance, 281
- improving the performance of a-Si photovoltaic modules, 15
- influence of drift field on n-i-p solar cell performance, 263
- outdoor performance and stability testing of thin film devices, 343

Photoconductivity

- temperature-dependent photoconductivity and light-induced changes in a-Si_{1-x}Ge_x:H alloys, 205

Photodiodes

- photocollection efficiency of GaAs/AlAs/GaAs p⁺-i-n and n⁺-i-p photodiodes, 233

Photoluminescence

- photoluminescence in polycrystalline CuInSe₂ solar cells, 379

Photoreflectance

- photoreflectance characterization of the space charge region in semiconductors: In₂O₃:Sn on InP as a model system, 371

Plasma deposition

- improvements in the disilane plasma deposition of silicon a-Si:H solar cells, 167

Polyimide

- continuous-mode fabrication of a-Si solar cells on polyimide substrates, 141

Reactive annealing

- preparation of CuInSe₂ and CuInS₂ films by reactive annealing in H₂Se or H₂S, 215

Reactive sputter deposition

- preliminary results on CuInSe₂/ZnSe solar cells using reactively sputter-deposited ZnSe, 225

Research and development

- photovoltaics research and development — key to America's energy source, 449

Safety

- photovoltaic safety conference, 457

Scanning electron microscopy

- transmission electron microscopy and scanning electron microscopy characterization of GaP grown by metal-organic chemical vapour deposition on Si substrates, 459

Silane

- preparation of solar-grade a-Si from fluorinated silanes, 195

Silicon

- Auger line shape analysis of a-Si:H, 135
- bonding defects in a-Si alloys, 387
- continuous-mode fabrication of a-Si solar cells on polyimide substrates, 141
- defects in a-Si:H and related alloys, 452
- evidence for microstructure in glow discharge a-SiC:H alloys, 117

- gas and surface processes leading to a-Si:H films, 147
- highly efficient Si solar cells, 457
- improvements in the disilane plasma deposition of silicon a-Si:H solar cells, 167
- improving the performance of a-Si photovoltaic modules, 15
- laser-induced chemical vapour deposition of a-Si:H: photovoltaic devices and material properties, 177
- long-term stability of a-Si solar cells and modules, 25
- material considerations for high efficiency Si solar cells, 81
- metastability of a-Si:H, 419
- optical absorption and disorder in a-SiGe:H and a-SiC:H alloy systems, 189
- photochemical vapour deposition of a-Si and alloys for thin film solar cells, 453
- preparation of solar-grade a-Si from fluorinated silanes, 195
- status and directions in high efficiency Si solar cell research, 450
- structural characterization of a-Si and Ge, 19
- study of thermal and light-induced changes in a-Si alloy materials, 453
- temperature-dependent photoconductivity and light-induced changes in a-Si_{1-x}Ge_x:H alloys, 205
- theoretical investigations of the light-induced effects in a-Si:H, 439
- transmission electron microscopy and scanning electron microscopy characterization of GaP grown by metal-organic chemical vapour deposition on Si substrates, 459
- Solid state theory
 - work in the solid state theory group at the Solar Energy Research Institute, 458
- Space charge region
 - photoreflectance characterization of the space charge region in semiconductors: In₂O₃:Sn on InP as a model system, 371
- Spectral solar radiation
 - joint EPRI-SERI spectral solar radiation database project, 337
- Spectrum
 - measurement of photovoltaic device current as a function of voltage, temperature, intensity and spectrum, 313
- Sputtering
 - fundamental processes in sputtering of relevance to the fabrication of thin film solar cells, 41
 - preliminary results on CuInSe₂/ZnSe solar cells using reactively sputter-deposited ZnSe, 225
- Stability
 - effects of dopant and impurity incorporation on metastable light-induced defect formation, 431
 - electronic structure and stability of semiconductor alloys, 460
 - long-term stability of a-Si solar cells and modules, 25
 - metastability of a-Si:H, 419
 - outdoor performance and stability testing of thin film devices, 343
- Stoichiometry
 - on the effect of stoichiometry and oxygen on the properties of CuInSe₂ thin films and devices, 55
- Structural characterization
 - structural characterization of a-Si and Ge, 19
- Tandem junction cells
 - amorphous alloy tandem junction solar cells, 451
- Temperature
 - measurement of photovoltaic device current as a function of voltage, temperature, intensity and spectrum, 313
- Ternary compounds
 - GaAs-based ternary compounds and solar cell research, 456
- Thermal effects
 - study of thermal and light-induced changes in a-Si alloy materials, 453
- III-V alloys
 - vacuum chemical epitaxial growth of III-V materials for multi-band-gap solar cells, 109
- Transmission electron microscopy
 - transmission electron microscopy and scanning electron microscopy characterization of GaP grown by metal-organic chemical vapour deposition on Si substrates, 459
- Tunnel junctions
 - patterned Ge tunnel junctions for

- multijunction monolithic cascade solar cells, 241
- II-VI alloys
 - II-VI and I-III-VI₂ alloy crystals for photovoltaic applications, 99
- Uniformity
 - light spot scanning of solar cells; a test of the assumption of uniformity, 459
- Vacuum chemical epitaxy
 - vacuum chemical epitaxial growth of III-V materials for multi-band-gap solar cells, 109
- Vacuum growth
 - vacuum growth of thin films of ZnSnP₂, 291
- Voltage
 - measurement of photovoltaic device current as a function of voltage, temperature, intensity and spectrum, 313
- ZnSe
 - preliminary results on CuInSe₂/ZnSe solar cells using reactively sputter-deposited ZnSe, 225
- ZnSnP₂
 - vacuum growth of thin films of ZnSnP₂, 291

